HHS Public Access

Author manuscript

Ann Surg Oncol. Author manuscript; available in PMC 2015 December 31.

Published in final edited form as:

Ann Surg Oncol. 2014 October ; 21(10): 3356–3357. doi:10.1245/s10434-014-3926-9.

A Pilot Study to Evaluate the Feasibility of the Image-Guided Breast Conserving Surgery in the Advanced Multimodality Image Guided Operating Suite (AMIGO)

Mehra Golshan, M.D.[1], **Yasuaki Sagara, M.D.**[1], **Barbara Wexelman, M.D.**[1], **Fatih Aydogan, M.D.**[1,2], **Stephen Desantis**[3], **H. Elise Min, M.D.**[1], **Kirby Vosburgh, Ph.D.**[4], **Jayender Jagadeesan, Ph.D.**[4], **Diana Caragacianu, M.D.**[1], **Eva Gombos, M.D.**[4], and **Ferenc Andras Jolesz, M.D.**[4]

[1]Brigham and Women's Hospital and Dana-Farber Cancer Institute, Department of Surgery, Boston, Massachusetts, United States

[2]Istanbul University, Cerrahpasa Medical School, Department of Breast Surgery, Istanbul, Turkey

[3]Dana Farber Cancer Institute, Breast Oncology Center, Boston, Massachusetts, United States

[4]Brigham and Women's Hospital, Department of Radiology, Boston, Massachusetts, United States

Abstract

Background—The rate of re-excision in breast conserving surgery (BCS) remains high, leading to delay in initiation of adjuvant therapy, increased cost, increased complications and a negative psychological impact to the patient (1-3). We initiated a phase I clinical trial to determine the feasibility of using the intraoperative MRI to assess margins in the Advanced Multimodality Image Guided Operating (AMIGO) suite.

Methods—All patients received contrast-enhanced 3D MRI under general anesthesia in the supine position, followed by standard breast conserving therapy with or without wire guidance and sentinel node biopsy. Additional margin re-excision was performed of suspicious margins and correlated to final pathology (Figure 1). Feasibility was assessed in two components: (1) demonstration of safety & sterility and acceptable duration of the operation and imaging, (2) adequacy of intraoperative MRI imaging for interpretation and its comparison to final pathology.

Results—Eight patients (mean age: 48.5), 4 with stage I breast cancer and 4 with stage II breast cancers were recruited. All patients underwent successful breast conserving therapy in the AMIGO suite with no AMIGO-specific complications or break in sterility during surgery. The mean operative time was 113 minutes [93-146].

Corresponding author: Mehra Golshan, M.D., Address: Brigham and Women's Hospital, 75 Francis St, Boston, MA, 02115, Phone: 617-632-2174, Fax: 617-582-7740, mgolshan@partners.org.

The original publication is available at the Annals of Surgical Oncology website at http://link.springer.com/article/10.1245%2Fs10434-014-3926-9

Conclusion—Our experience AMIGO suggests that it is feasible to use intraoperative MRI imaging to evaluate margin assessment in real time. Further research is required to identify modalities that will lead to reduction in re-excision in breast cancer therapy.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

References

1. Heil J, Breitkreuz K, Golatta M, et al. Do reexcisions impair aesthetic outcome in breast conservation surgery? Exploratory analysis of a prospective cohort study. Ann Surg Oncol. 2012; 19:541–7. [PubMed: 21761099]
2. Russo AL, Arvold ND, Niemierko A, et al. Margin status and the risk of local recurrence in patients with early-stage breast cancer treated with breast-conserving therapy. Breast Cancer Res Treat. 2013; 140:353–61. [PubMed: 23836011]
3. Waljee JF, Hu ES, Newman LA, Alderman AK. Predictors of re-excision among women undergoing breast-conserving surgery for cancer. Ann Surg Oncol. 2008; 15:1297–1303. [PubMed: 18259820]

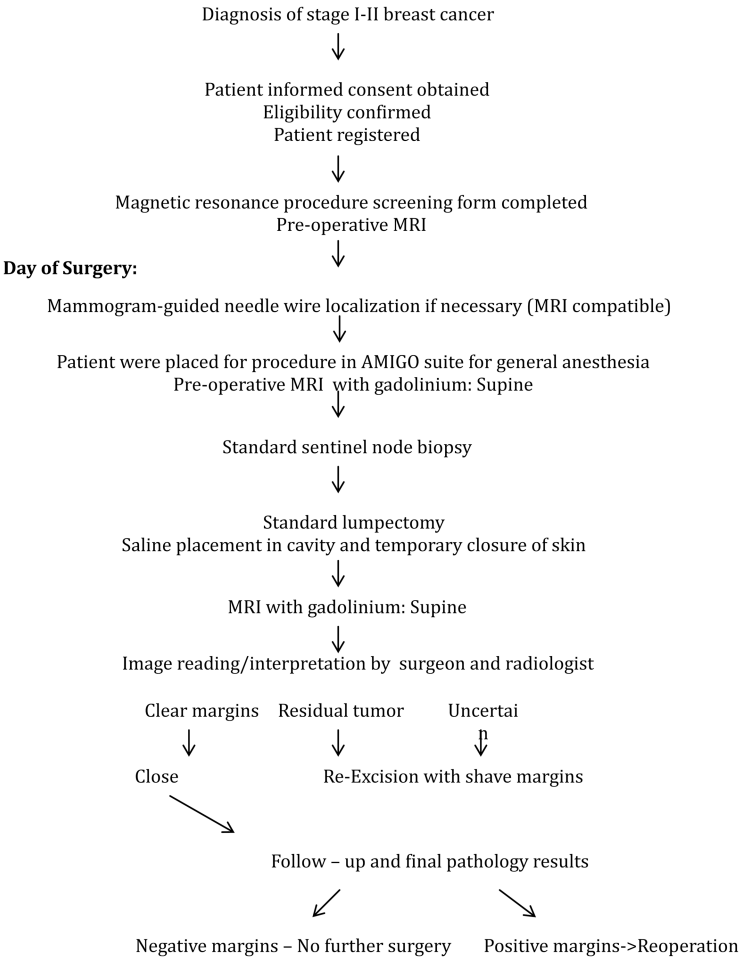

Figure 1. Schema of AMIGO Trial